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Control of invasive species in island territories

Jacques Tassin

The term invasive species is used for animal or plant populations that exhibit an ability to colonize new spaces and pullulate, often hampering resource management. Thus, they tend to go over borders of any kind, moving more or less freely from one territory to another. These intrusive populations pose specific problems for the environment by altering its composition, physiognomy or functioning to varying degrees. The thresholds in the perception of their harmfulness depend on the underlying cultural references and the situation of the actors in the territory.

The problems of invasive species are particularly acute in island territories, which are vulnerable, disturbed and poor in indigenous genetic resources, and thus more favourable to introduced species. The important control programmes launched in these territories often fail to garner consensus within local structures, pitting people who value exotic species, for agriculture or forestry, against those who perceive them negatively because they expand into natural environments to the detriment of native species or ecosystems functioning. It is only by comparing and reconciling different points of view at the territorial level, within working groups that bring together all stakeholders, that a consensus can be reached.

RECONCILIATION OF INTERESTS ON RÉUNION ISLAND

One such approach was adopted on Réunion Island at the end of the 1990s, as a result of meetings of the scientific advisory committee of the island's branch of the National Forestry Office (ONF), and the formation of a multi-institution group to address invasive species at the pan-island level. An initial shortcoming of this body was the under-representation of users of natural spaces and the inadequate involvement of agricultural actors in the decision-making process. For this reason, the success of a biological control programme against the giant bramble (*Rubus alceifolius*) was marred by tensions with beekeepers and horticulturists, not only because they felt excluded from decision-making, but also because of the intrusive nature of

the programme, whose effects extended beyond plot and farm boundaries. The sawfly *Cibdela janthina*, used as a control agent, was accused of being a competitor to bees and having a negative impact on litchi and Brazilian peppertree (*Schinus terebenthifolius*) production as well.

There have, however, been several attempts to promote an island-level approach. Invasive plants were categorized based on their environmental impact, their propensity to spread, and the feasibility of control measures (Tassin *et al.*, 2006a). Similarly, the ecological consequences of the invasions were assessed (Tassin *et al.*, 2006b) and the control operations carried out in all natural areas were recorded. A complementary regional approach was proposed to take advantage of the advances made in other island territories of the western Indian Ocean (Le Bourgeois and Soubeyran, 2012). Power tussles, however, emerged at both the territorial and the regional scale, with each party attempting to promote its own values and representations related to nature. Some species engendered strong conflicts of interest, especially those which generated an income, e.g., collection of the fruits of the Chinese guava (*Psidium cattleianum*) or the berries of the Brazilian peppertree. Scientific institutions, often considered to be neutral and with no vested interests, enjoyed a comparative advantage, and this permitted their representatives to occupy prominent places in debates and decision-making.

The territorial approach to invasive species is now included in Réunion's biodiversity strategy, as part of the national biodiversity strategy for the 2013-2020 period. It is the subject of a specific document on a strategy to control invasive species. Its aim is to propose and implement island-level actions of prevention and early detection, active control, raising awareness and governance. An operational programme was established to facilitate the strategy's implementation. Researchers were involved in both phases of deliberation and planning. However, this detailed formalization of governance and planning, orchestrated at a very upstream level, must not take precedence over concertation with all local partners and users. Their presence in the Réunion invasive species group, especially from the island's beekeepers' association and the horticulturists' and nursery growers' associations, provides a necessary counter-weight to conservationist institutions. It makes it possible to balance the exclusively environmentalist perspectives of the latter with economic factors on which the well-being of users depends. The research community, familiar with partners from the agricultural profession, operates informally to promote such an expansion.

A LESS CONSENSUAL APPROACH IN NEW CALEDONIA

This dynamic of concertation at the territorial scale is also at work in New Caledonia, albeit more slowly and, seemingly, in a less interactive way, due partly to the administrative reorganization of the archipelago into provinces in 1989. New Caledonia has three provinces, of which the South Province and North Province are contiguous, though, administratively, all of them are partially disconnected from each other. Plant species were hierarchized according to their risks for the entire archipelago to identify species that had to be targeted first (Hequet *et al.*,

2009). An initial guide was then drafted for the benefit of provincial technical services. It described the major invasive plants and appropriate techniques to control them (Desmoulins *et al.*, 2012). A second manual followed, focusing more specifically on invasive species in areas used for livestock husbandry (Blanfort *et al.*, 2014). However, this approach illustrates a tendency to make any response to the problem of invasive species in New Caledonia essentially technical, as is evidenced by the establishment, in 2013, of an ‘invasive species’ technical committee in the Conservatory of Natural Areas in New Caledonia.

The environmental observatory in the South Province set up an invasive species group in 2004, bringing together actors from various territorial communities, the State, and the Territory of New Caledonia, as well as representatives of environmental conservation groups and scientific and technical institutes. This group immediately associated itself with a technical appraisal that was conducted in 2005 by the International Union for the Conservation of Nature (IUCN). However, local professional sectors have scope for much more involvement in discussions on the management of invasive species, given their counterparts’ participation in similar processes on Réunion Island. While the programme to control *Miconia* (*Miconia calvescens*) has broad support, the same cannot be said of introduced species that are recreationally hunted, e.g., the Rusa deer (*Cervus timorensis*) or the wild pig (*Sus scrofa*). Finally, the triple identity of the archipelago, arising from its political division into three provinces in 1989, hampers attempts for consultations and discussions on this subject.

THE CASE OF *MERREMIA PELTATA* IN MAYOTTE

The situation in Mayotte is unique for unfavourable reasons related to territorial history and administration that hamper local debates on environmental issues. An informal working group was created in 2005 on the initiative of the environment department of the Directorate for Agriculture and Forestry (DAF). This body was not very active until 2012, when the Directorate for Environment, Planning and Housing (DEAL) took over its management. This working group, now run by the Conservatoire Botanique National de Mascarin, facilitates consultations and discussions, and has proposed initial action plans for invasive species of particular concern, such as *Merremia peltata*, *Acacia mangium* or *Adenanthera pavonina*. As users and economic actors are under-represented, the composition of this group remains asymmetrical.

The situation of the indigenous liana *Merremia peltata* is particular. Although it can cause the collapse of forest stands under its weight and the mechanical stress generated on steep slopes (Tassin and Laizé, 2015), it is still considered to be implicitly harmless by the Conservatoire Botanique National de Mascarin because of its indigenous character (Tassin, 2014). A territorial consensus on the management of this liana is therefore difficult to build, which undermines the implementation of new control measures, such as the experiments previously initiated by the forest resources division to limit its spread.

TOWARDS A COMPREHENSIVE MANAGEMENT OF INVASIVE SPECIES GIVING WAY TO TERRITORIAL GOVERNANCE MECHANISMS

Although the territorial approach on invasive species is useful for its aspects of dialogue and local cooperation, it cannot be an end in itself. No doubt, the consultations and coordinated monitoring carried out at all levels are justified. But this territorial approach will be futile if it is not linked with a broader plan of action pertaining to the overall management of biodiversity. It is in this direction that territorial concertation bodies are evolving with regard to invasive species, even though their progress varies greatly from one territory to another.

It is important for the territory not to merely act as a conduit for the local implementation of decisions taken upstream, at a much wider level. To be effective and meaningful, the territorial approach for managing invasive species must be protected from possible external pressures and influences. At the very least, it must not be manipulated by international organizations that, under the pretext of 'fragmentation' or 'dispersal' of control measures (Soubeyran, 2008), attempt to pass on information and action methods that are universal, decontextualized and debated in forums to which the territories themselves do not always have access. However, it is not clear whether territorial authorities can operate freely in this area, or that they will be able to do so in the next few years, if the two examples of Réunion and New Caledonia are anything to go by. The research community has a role to play in legitimizing local knowledge identified by the Convention on Biological Diversity, and in the necessity of taking it into account during the adaptation of plans determined at a more upstream level.

On the other hand, it is still necessary to be able to take advantage of external experiences of territorialized management of invasive species. Major international organizations, such as the IUCN, can play the role of able coordinators or provide effective platforms for the exchange of ideas. It is incumbent on local authorities to be vigilant on this point and ensure that the territorial management of invasive species always remains genuine, useful and, above all, territorial.

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